

# Enablers for Mobile Broadband Wireless Access

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# Broadband Wireless Access Enablers

- solutions for the development of mobile BWA - regulatory perspective
- femtocell

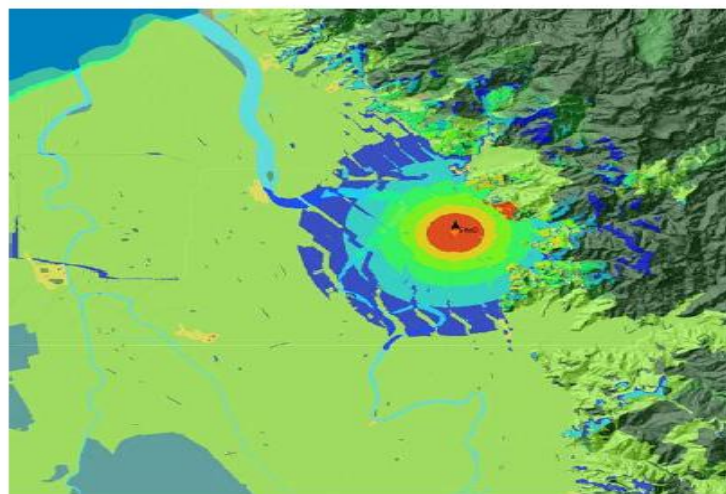


# solutions for the development of mobile BWA

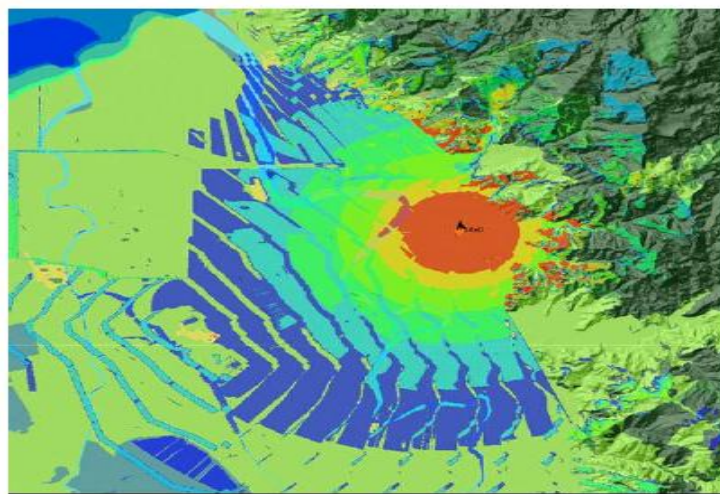
## regulatory perspective

- development of mobile BWA is an already proven necessity
- high level of request on the Romanian market - the number of mobile internet active connections increased in 2008 by 150% as compared to 2007 (from 1.09 million to 2.74 million)

### UMTS 900 MHz vs. 2100 MHz link budget



**2 GHz UMTS Coverage**



**900 MHz UMTS Coverage**

Strongest Pilot Level    ■  $\geq -80$     ■  $\geq -85$     ■  $\geq -90$     ■  $\geq -95$     ■  $\geq -100$     ■  $\geq -105$

*Figure 1: Comparison of coverage plots with 2GHz and 900 MHz*



# regulatory solutions to increase penetration of BWA

## UMTS 900

the benefits for the end-users are wider coverage, broadband services in rural areas due to:

- the gain on link budget at 900MHz mainly comes from the propagation model
- cell range increased by 50-60 %

key issue: investment in the deployment of UMTS 900 needs to be guaranteed by the right to use the 900 MHz band for a reasonable period of time



# regulatory solutions to increase the penetration of BWA

## Digital Divided Spectrum for Mobile Communication

- the upper part of the digital dividend and in particular the 72 MHz, currently being chosen by an increasing number of countries, should be rapidly allocated to the mobile services - a crucial issue for the development of the mobile broadband communications services
- an important instrument for the development of mobile high-speed broadband services for the consumer benefits
- key issue: visibility on the timing required for the reorganization of the frequencies necessary for operators and manufacturers

## Proper remedies on markets 4 and 5

## Regulatory principles

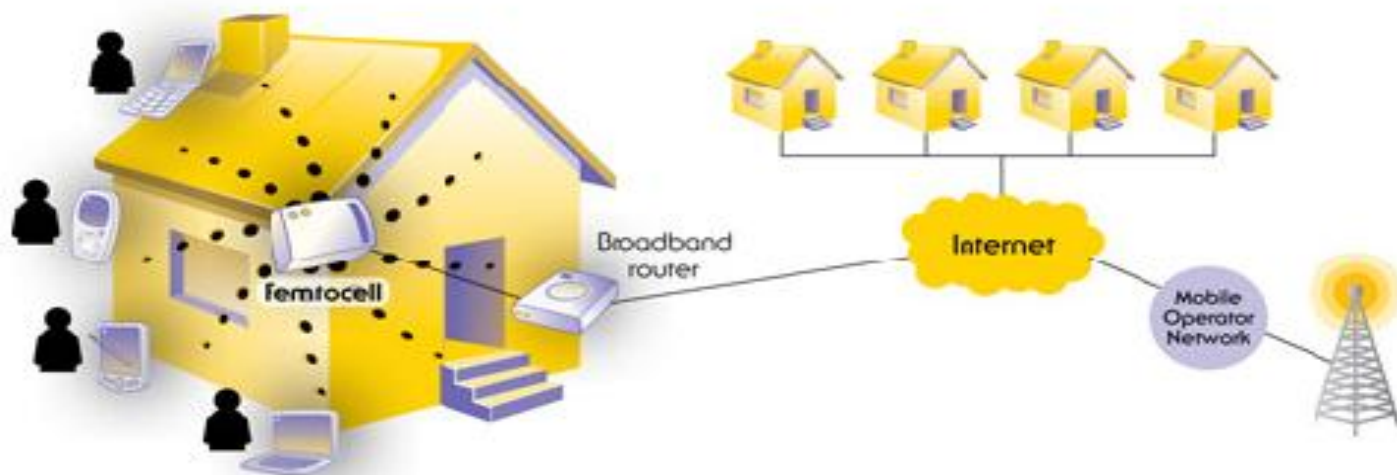
- the regulatory measures must be predictable and in place at the right time; NRA has to pay special attention to the fact that now new investments in the telecom sector are approached more cautiously by operators and investors than in the recent past



# femtocell as enabler

**3G access point** using a collapsed network architecture and **IP connectivity**

- solution for successfully developing wireless broadband networks
- output power: 10 to 100 mW (10 to 20 dBm)
- low cost device similar to a WiFi access point
- using **3G cellular** operator licensed spectrum
- femtocell is seen as a voice enabler for operators with fixed access infrastructure
- femtocell-based services considered over ADSL, CaTV, FO and WiMAX backhauls with and without open ISP model



# femtocell advantages and challenges

- 70% of mobile calls are originating within building, therefore it makes sense to consider home zone indoor deployment
- femtocell platform commercial availability estimated for H1 2010

## end-user advantages

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- better service: with a coverage radius of 50-200 m femtocells will provide five bars of coverage throughout the house
- higher throughput and improved multimedia experience: femtocells will support 4-16 simultaneously active users and higher data rates offloading the 3G/HSPA traffic from the macro network
- Fixed-mobile convergence: a single voice/data device can be used outdoors and at home but at different tariffs

## challenges and regulatory issues

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- does the 3<sup>rd</sup> party ISP have the right to block or downgrade the quality of the femtocell traffic impacting voice & data quality?
- no EU regulation available on this segment
- the major drawback - strong incentives are required for the end-user to use its own broadband connection (xDSL, FO, CaTV or WiMAX) with or without an 'open ISP' model
- the end user needs to be aware about potential limitations due to poor QoS on his fixed broadband connection

# femtocell - Orange experience

Orange Romania feedback from the first trials is positive

- the main traffic on the femtocells was voice, rather than data
- 'open ISP' could be considered for an initial deployment
- however, the use of the same frequency for the macro and femtocell layers will cause interference and reduce the coverage
- a lot of femtocells in the network may create problems with interferences if not using a dedicated 5 MHz FDD carrier

prerequisites for a successful commercial deployment

- regulatory: find a solution for the high yearly fee associated with the usage of a dedicated 5 MHz FDD carrier
- vendors: the price of commercial femtocells needs to be similar to that of existing WiFi routers





# femtocell regulatory issues

- is open ISP a viable option for Romania?
- should the open ISP market be regulated?
- how can we move forward?



Thank You

